

ANALOG-DIGITAL CONVERTER

Patent Number: JP58153921
Publication date: 1983-09-13
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Requested Patent: JP58153921
Application Number: JP19820037695 19820309
Priority Number(s):
IPC Classification: G02F7/00 ; H03K13/18
EC Classification:
Equivalents:

Abstract

PURPOSE: To improve the resolution and the conversion speed of an A/D converter, by utilizing the change of the wavelength of light to perform quantization on the basis of positions of photodetectors.

CONSTITUTION: A laser-activated matter 1 oscillates pulses of laser light synchronously with clock pulses 7, and the frequency of oscillated pulses is determined by the optical length between mirrors 3 and 4. The voltage applied to an electrooptic crystal 2 is changed to change the optical length. Since the oscillation frequency changes continuously except mode jump points for the optical length, this system functions to sample a signal 6, which should be subjected to A/D conversion, synchronously with clock pulses 7. Laser light 5 changes the angle of diffraction in accordance with its wavelength and is made incident to a photodetector corresponding to the angle of diffraction on a photodetector array 11. The output of the photodetector is inputted to an encoder 12, and an A/D-converted encoded output is taken out from a terminal 13.

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